

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
20 January 2005 (20.01.2005)

PCT

(10) International Publication Number
WO 2005/005900 A3

(51) International Patent Classification⁷: **F27D 3/18**,
F27B 3/22, C21C 5/52

(21) International Application Number:
PCT/EP2004/051437

(22) International Filing Date: 9 July 2004 (09.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
MI2003A001397 9 July 2003 (09.07.2003) IT

(71) Applicant (for all designated States except US): **DANIELI & C. OFFICINE MECCANICHE S.P.A.** [IT/IT]; Via Nazionale 41, I-33042 BUTTRIO (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RUSCIO, Enzo** [IT/IT]; Via Val di Fiemme 30, I-33013 GEMONA DEL FRIULI (IT). **CONTARDO, Claudio** [IT/IT]; Via Garibaldi 12, I-33030 MURIS DI RAGOGNA (IT). **TRAVAGLINI, Carlo** [IT/IT]; Via Pracchiuso 59, I-33100 UDINE (IT).

(74) Agent: **GERVASI, Gemma; NOTARBARTOLO & GERVASI S.p.A.**, Corso di Porta Vittoria 9, I-20122 MILAN (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

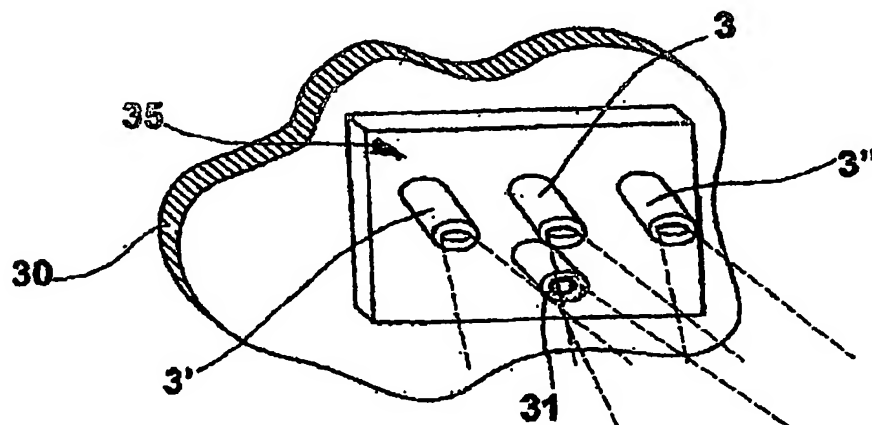
— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: A BURNER AND GAS-INJECTION DEVICE



(57) Abstract: A burner and oxygen-injection device (35) for a melting furnace (30) comprising one or more injectors (3, 3', 3'') consisting of an internal pipe (1) and a head (2), which is fixed to one end of said hollow body and is provided with a nozzle (4) that sets the pipe (1) in communication with the outside. The nozzle has at least the outlet cross section (13) of a substantially oblong shape, in such a way that a subsonic flow of oxygen coming out of said nozzle will open in fanwise fashion, along an inclined plane containing an axis that is substantially horizontal and orthogonal to the axis of the nozzle. The injector (3) comprises holes (6) for injection of gaseous fuel, around said nozzle, arranged along the elongated sides of the outlet cross section of the nozzle. The device (35) also comprises a pipe for injection of carbon in powder form set underneath the nozzle or nozzles (3, 3', 3'').

BEST AVAILABLE COPY

BEST AVAILABLE COPY

WO 2005/005900 A3



(88) Date of publication of the international search report:
14 April 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

BEST AVAILABLE COPY